

USGS Barrow Observatory

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The Barrow Magnetic Observatory is the northernmost of this agency's (U.S. Geological Survey) 12 continuously-recording, digital magnetic observatories. As such, it serves as a singularly important site in a global network of observing stations whose combined data define the planetary magnetic field and track its secular change. Ground stations such as the Barrow Observatory are controls for field modeling by harmonic analysis, essential reference stations for airborne and satellite surveys, and absolute calibration locations for field survey instrumentation.

The primary instrumentation operated is an EDA FM-100BR Triaxial fluxgate magnetometer, an EDA PPM-105 proton free-precession magnetometer, an Observatory Magnetometer Interface System (OMIS), and several pier-mounted instruments for absolute control observations.

In August 1993 the USGS and NOAA negotiated a Memorandum of Agreement (MOA) to have CMDL personnel at Barrow service the USGS BRW equipment, make instrument observations, and provide some logistic support.

The principal investigator for the Barrow Observatory in 1993 was Jack Townshend. The coinvestigator in 1993 was Robert Hammond. In 1994, Johnny Dickey is the coinvestigator. The Barrow Magnetic Observatory receives its authorization to operate from the USGS Branch of Earthquakes and Geomagnetic Information in Golden, Colorado.

Parts of the NOAA-USGS MOA are presented below to provide some history and background of our joint Barrow operations.

For many years, the Naval Arctic Research Laboratory (NARL) was the source of electrical power, road maintenance, transportation, and lodging support. Effective October 1, 1984, this support was no longer assured as the Navy began the process of transferring ownership of NARL to the Ukpeagvik Inupiat Corporation (UIC).

Individual withdrawal applications for land occupied by each agency's project was approved by BLM and published in the Federal Register. Withdrawal file numbers are NOAA-F-81469 and USGS-F-81490. Transfer of the land to the USGS and NOAA was made effective April 2, 1991, and published in the *Federal Register*, Volume 56, Number 63, page 13413, dated April 2, 1991.

A third-party agreement was set up between NOAA, USGS, and the Department of the Air Force, now located at 11TCW/LG0X, 6900 9th St. Suite 301, Elmendorf AFB, Alaska 99506-2270, to provide support for electrical power, road service, transportation, vehicle repair, lodging, and

meals through their DEW System Station at Barrow, Alaska (Pow-Main). This agreement (Inter-Agency MOA between NOAA and USGS) will be an attachment to the "Support Agreement" between USAF, NOAA and USGS. NOAA is authorized by the USGS to be signatory to the "Support Agreement" with the USAF, since they want only one signature on the document.

Subsequently NOAA and USGS agreed to get power from the Barrow Utilities and Electric Co-op, Inc., (BUEGI), through the Ukpeagvik Inupiat Corporation/Northern Arctic Research Laboratory (UIC/NARL) facility.

NOAA and the USGS shall continue to acquire electrical power from the Barrow Utilities and Electric Co-op., Inc. (BUECI). During emergencies and times then when power is not available from BUECI, it is the intent of NOAA and USGS to receive electrical power from the Air Force DEW Line.

Under the terms of the MOA, NOAA agrees to have the CMDL personnel at Barrow do the following:

Weekly

Check facilities for any noticeable damage or unusual conditions and report anything that may seem out of the ordinary to the College Observatory, Fairbanks, check the Observatory instruments and equipment, and make routine rotations on specific forms supplied.

Monthly

Make six sets of magnetic absolute observations with a Declination Inclusion Magnetometer (DIM); make one set of Scale Value Observations on the Observatory Magnetometer Interface System (OMIS) Fluxgate Magnetometer; change digital magnetic, and analog paper tapes; and send all data, computations, observations, and tapes to the USGS office.

Unscheduled

Perform minor trouble shooting and make adjustments to equipment when USGS technical personnel provide instructions by telephone.

For the services supplied by NOAA in the previously mentioned items, the USGS will reimburse NOAA for the time required to perform the work, travel time required to get to and from USGS facilities and instruments, and a reasonable amount for unplanned circumstances because of emergencies, weather, etc. Supplies and materials are not included in this agreement. USGS will pay for or reimburse NOAA for supplies or materials needed.